depicting the depth of anesthesia on a scale from 1 to 100. In addition, neural networks have been used to classify sedation concentration from the power spectrum of the EEG signal. However, this technology is costly and not entirely predictive.

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In the Claims

Claim 1 canceled.

2 (currently amended). The method of claim [1]3 wherein the breath is analyzed after a predetermined period of time.

3 (currently amended): [The method of claim 1 further comprising the step of] A method for determining the depth of anesthesia wherein at least one anesthetic agent is administered into a patient's bloodstream during the delivery of anesthesia, comprising:

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sampling a patient's expired breath;

analyzing the breath for concentration of at least one substance indicative of the anesthetic agent using sensor technology;

determining depth of anesthesia based on the concentration; and

using a flow sensor to detect starting and completion of exhalation during said sampling step.

4 (currently amended): The method of claim [1]3 further comprising the step of controlling an infusion pump for delivering the agent intravenously based on the depth of anesthesia determined.

5 (currently amended). The method of claim [1]3 wherein the agent is delivered by a delivery method selected from the group comprising: intravenous delivery, parenteral delivery, sublingual delivery, transdermal delivery, and *i.v.* bolus delivery.

6 (currently amended). The method of claim [1]3 wherein the agent is delivered by continuous infusion.

7 (currently amended). The method of claim [1]3 wherein the agent is delivered by an infusion pump.

8 (currently amended). The method of claim [1]3 wherein the agent is selected from the group comprising Remifentanil and Propofol.

9 (currently amended). The method of claim [1]3 wherein the steps are repeated periodically to monitor trending over time.

10 (currently amended). The method of claim [1]3 wherein the agent is for amnesia.

11 (currently amended). The method of claim [1]3 wherein the agent is for analgesia.

12 (currently amended). The method of claim [1]3 wherein the agent is for muscle relaxation.

13 (currently amended). The method of claim [1]3 wherein the agent is for sedation.

14 (currently amended). The method of claim [1]3 wherein a combination of agents is administered.

15 (currently amended). The method of claim [1]3 wherein the concentration is measured to determine anesthetic blood concentration.

16 (currently amended). The method of claim [1]3 wherein the concentration is measured to determine analgesic blood concentration.

17 (currently amended). The method of claim [1]3 wherein the concentration is measured for a level indicative of recovery.

18 (currently amended). The method of claim [1]3 wherein the sampling is continuous.

19 (currently amended). The method of claim [1]3 wherein the sampling is periodic.

20 (currently amended). The method of claim [1]3 wherein the patient's breath is analyzed by sensor technology selected from semiconductor gas sensor technology, conductive polymer gas sensor technology, or surface acoustic wave gas sensor technology.

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21 (original). The method of claim 20 wherein the sensor technology produces a unique electronic fingerprint to characterize the concentration of said at least one substance.

22 (currently amended). The method of claim [1]3 further comprising the step of recording data resulting from analysis of the patient's breath.

23 (currently amended). The method of claim [1]3 further comprising the step of transmitting data resulting from analysis of the patient's breath.

24 (currently amended). The method of claim [1]3 wherein the analysis of the patient's breath includes comparing the substance sensed in the patient's breath with a predetermined signature profile.

25 (currently amended). The method of claim [1]3 further comprising the step of capturing the patient's breath in a vessel prior to analysis.

26 (currently amended). The method of claim [1]3 further comprising the step of dehumidifying the patient's breath prior to analyzing.

27 (currently amended). The method of claim [1]3 wherein said analysis further includes detecting exhalation of the patient's breath with a sensor.

28 (currently amended). The method of claim [1]3 wherein said substance indicative of the anesthetic agent is free anesthetic agent.

29 (currently amended). The method of claim [1]3 wherein said substance indicative of the anesthetic agent is metabolites of the anesthetic agent.

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30 (currently amended). The method of claim [1]3 wherein said substance indicative of the anesthetic agent is free anesthetic agent and metabolites of the anesthetic agent.

31 (currently amended). The method of claim [1]3 further comprising the step of assigning a numerical value to the concentration as analyzed upon reaching a level of anesthetic effect in said patient and, thereafter, assigning higher or lower values to the concentration based on its relative changes.

32 (original). The method of claim 31 further comprising monitoring the concentration by monitoring changes in said value and adjusting administration of anesthesia to maintain a desired anesthetic effect.

33 (currently amended). A method for monitoring endogenous compounds in a patient, comprising:

sampling a patient's expired breath;

analyzing the breath for concentration of endogenous compounds using sensor technology; and

calculating the concentration of endogenous compounds, wherein the endogenous compounds are selected from hydrocarbons, alcohols, ketones, glucose, electrolytes, or oxygenated, chlorinated, or nitrogenated organic chemical compounds.

34 (original). The method of claim 33 wherein the endogenous compounds are selected from glucose, ketones, or electrolytes.

35 (original). An anesthetic agent delivery system for delivering a desired dose of anesthetic agent to a patient comprising:

an anesthetic supply having a controller for controlling the amount of anesthetic agent provided by the supply;

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a breath analyzer for analyzing the patient's breath for concentration of at least one substance indicative of the anesthetic agent concentration in the patient's bloodstream that provides a signal to indicate the anesthetic agent concentration delivered to the patient; and

a system controller connected to the anesthetic supply which receives the signal and controls the amount of anesthetic agent based on the signal.

36 (original). The system of claim 35 wherein the breath analyzer comprises a collector for sampling the patient's expired breath, a sensor for analyzing the breath for concentration of at least one substance indicative of the anesthetic agent concentration, a processor for calculating the effect of the agent based on the concentration and determining depth of anesthesia.

37 (original). The system of claim 36 wherein the sensor is selected from semiconductor gas sensor technology, conductive polymer gas sensor technology, or surface acoustic wave gas sensor technology.

38 (original). An apparatus for administering intravenous anesthesia to a patient comprising:

at least one supply of at least one intravenous anesthesia agent;

intravenous delivery means for controllably intravenously delivering said at least one intravenous anesthesia agent to the patent;

a breath analyzer for analyzing the patient's breath for concentration of at least one substance indicative of the anesthetic agent in the patient's bloodstream that provides a signal to indicate the anesthetic agent concentration delivered to the patient; and

a system controller connected to the intravenous delivery means which receives the signal and controls the amount of anesthetic agent based on the signal.

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39 (original). A method for monitoring perflubron levels in an anemic patient, comprising:

(i) sampling a patient's breath;

(ii) analyzing the breath for concentration of perflubron using sensor technology; and

(iii) calculating the blood concentration of perflubron based on the concentration.

40 (new). The method of claim 33 wherein the endogenous compounds are acetone or ammonia.

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